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Two Studies on Participation in Decision-Making and Equity Among FAA Personnel

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16. Abstract <i>Study 1</i> Moderated multiple regression analyses on data collected from 2,177 FAA air traffic controller specialists indicated that equity perceptions moderated the relationship between participation in decision-making and level of job satisfaction. Specifically, the correlation between participation in decision-making and job satisfaction scores was higher among subjects high in equity than those low in equity. These results suggest that when individuals perceived their pay, promotional opportunities, and performance ratings as being unfair, participation in decision-making may have had less effect on job satisfaction than when individuals perceived them as being fair. In general, the success of managerial efforts to improve job satisfaction by implementing participation in decision-making efforts may be limited when subordinates perceive their personal work situation as unfair. <i>Study 2</i> Extending research on the effects of participation in decision-making (PDM) and perceived environmental uncertainty (PEU) on job attitudes, the present study investigated the hypothesis that PDM and PEU scores would account for variance in perceptions of the levels of fairness in personnel decisions. As hypothesized, data collected from 357 Federal Aviation Administration personnel indicated that perceptions of participation in decision-making and environmental uncertainty accounted for unique variance in perceptions of levels of fairness in personnel decisions. Although limited by the possibility of method variance, these data suggest the importance of information in the development of equity perceptions.			
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THE MODERATING EFFECT OF EQUITY ON THE RELATIONSHIP BETWEEN PARTICIPATION IN DECISION-MAKING AND JOB SATISFACTION

Of considerable conceptual and practical interest in recent years have been the outcomes of increased employee "participation in decision-making." Argyris (1964) stated that employees will manifest responsible adult behaviors only when their managers realize that they want to be involved in making decisions. Psychological folklore suggests that participation in decision-making will have uniformly positive benefits (Greenberg & Folger, 1983). Empirical studies have consistently shown participation in decision-making to be positively related to job satisfaction (cf. Cotton, et al., 1988). Other empirically identified outcomes of participation in decision-making include increased organization information-processing capabilities (Castrogiovanni & Macy, 1990), improvements in understanding work tasks (Niehoff, Enz, & Grover, 1990), and employee health (Jackson, 1983). These findings have led to a variety of participation in decision-making efforts (e.g., quality circles).

In general however, empirical investigations of the effects of participation in decision-making on employees have yielded mixed results (Cotton, Vollrath, Froggatt, Lengnick-Hall, & Jennings, 1988; Hammer, 1988; Kruse, 1984; Locke & Schweiger, 1979; Strauss, 1982; Yukl, 1981). One of the problems with interpreting participation in decision-making research has been the difficulty of identifying what participation in decision-making entails (Dachler, 1978).

Participation in decision-making has been operationalized in a variety of ways but conceptualized as a unitary concept (Cotton, et al., 1988). Thibaut and Walker (1975) provided a useful conceptualization with their identification of two forms of participation: (a) choice, where the participant has some control over the outcome, and (b) voice, where the participant articulates his/her interest to the decision-maker. Voice may include influence over defining the problem, gathering information bearing on the decision, and identifying alternatives, but not making the decision (Thibaut & Walker, 1975).

To the extent that subordinates can express opinions to the supervisor, they have a "voice" (Cohen, 1985).

Another problem in participation in decision-making research has been the possible effects of variables that may moderate relationships between participation in decision-making and outcome variables (Schweiger & Leana, 1986). Several moderating effects have been investigated: (a) leader skills (Maier & Sashkin, 1971); (b) personality (Abdel-Halim, 1983; McCurdy & Eber, 1963; Ruh, White, & Wood, 1975; Runyon, 1973; Schuler, 1980; Wexley, Singh, & Yukl, 1973); (c) task attributes (Shaw & Blum, 1966); (d) hierarchical level (Lowin, 1968); and (e) environmental uncertainty (Burns & Stalker, 1961). Indeed, it is likely that the effect of participation in decision-making on job satisfaction may be influenced by other contextual factors.

Equity perceptions may moderate the relationship between participation in decision-making and job satisfaction. Research on equity (e.g., Bies, 1987) has indicated that when organization members participate, they see the result as more just and satisfactory. This effect occurs even when the participant is assured that his/her voice will be considered, but when there is no way he/she can verify that it was (i.e., the "fair process effect"; Greenberg & Folger, 1983). Equity theory (Adams, 1963) has received considerable theoretical and empirical attention in organizational science over the last two decades. Researchers have primarily emphasized how distributions of organizational monetary rewards (i.e., distributive justice) affect behavioral outcomes (e.g., job satisfaction, turnover, and performance). Recent research has suggested the utility of extending equity theory to the processes through which outcomes develop or "procedural justice" (Thibaut & Walker, 1975) and non-monetary outcomes (Greenberg, 1988).

Procedural justice refers to the individual's belief that "fairness exists when allocative procedures satisfy certain criteria" (Leventhal, Karuza, & Fry, 1980, p. 195-196). The procedural elements of the decision process include participation in decision-making (Thibaut & Walker, 1975). Following Leventhal (1980), Greenberg (1986a) argued that these principles affect perceptions of procedural justice: (a) the correctability rule (i.e., procedures should increase participant inputs into the decision process), (b) the accuracy rule (i.e., procedures should enhance the accuracy of information used in the decision process), and (c) the bias suppression rule (i.e., procedures should discourage supervisor motivations to use bias in their decisions). The fairness of procedures is important in organizational settings. For example, budgetary fluctuations may require reductions in hours worked. Most, if not all, employees may see this outcome as unfair (i.e., distributive injustice). However, if the supervisor uses what is seen as a "fair" process to decide which employees are assigned reduced hours (e.g., equal distribution of reduced hours, tenured employees given less reductions), then employee job satisfaction may be affected very little. If the supervisor uses what is seen as an "unfair" process to make the decision (e.g., the supervisor's golf buddy is not given reduced hours), then employee job satisfaction may be considerably affected.

The equity theory approach, in looking at nonmonetary outcomes, has begun to yield promising findings. For example, an emerging literature has examined the effects of performance appraisals on employee equity perceptions. Greenberg (1986b) argued that the processes by which job information is collected and by which performance ratings are made bear on matters of procedural rather than distributive justice. Evidence suggests that a major component of an evaluation perceived as fair is one that contains fair procedures (Landy, Barnes, & Murphy, 1978; Landy, Barnes-Farrell, & Cleveland, 1980). Of course, the outcomes of performance appraisal and pay assignment reflect distributive justice considerations. Both procedural and distributive outcomes of the employee's own work situation are important to the employee; in other words, the outcomes of pay, performance

appraisal, and promotion decisions as well as how they were made are important.

Following equity research (e.g., Bies, 1987; Lind & Tyler, 1988), it is suggested here that participation in decision-making will have a greater effect on job satisfaction when employees perceive their personal work situation as fair than as less fair or unfair. In other words, when the individual sees his/her situation as unfair, participation in decision-making opportunities may be of little salience on the consideration of job satisfaction. The present study examined the extent to which perceived fairness or equity in the personal work situation would affect the relationship between participation in decision-making and job satisfaction relationship. Specifically, it was hypothesized that participation in decision-making would be more strongly related to job satisfaction when the aspects of the personal work situation were seen as fair than when perceived as unfair.

METHOD

Subjects and Procedure

Subjects were 2,177 (mean age = 28.8 years) FAA air traffic controller specialists (1,895 males and 282 females), who voluntarily completed and returned by mail a questionnaire as part of the Airway Science Curriculum Demonstration Project. The subjects were fairly well educated, as 1,831 (84%) had received formal education beyond high school.

Measures

Three measures developed by the Office of Personnel Management (1979) were employed -- a 5-item job satisfaction scale ($M = 17.58$, $SD = 2.97$), a 4-item participation in decision-making scale ($M = 12.4$, $SD = 2.67$), and a 3-item equity scale ($M = 9.5$, $SD = 2.22$). Items and their means and standard deviations are presented in Tables 1, 2, and 3. Items were presented on a 5-point, Likert-type scale (1 = strongly disagree; 2 = disagree; 3 = undecided; 4 = agree; 5 = strongly agree).

Table 1.
Job Satisfaction Scale Items

Item	Mean	SD
1. All in all, I am satisfied with my pay.	3.34	1.00
2. I am satisfied with the chances of getting a promotion.	3.61	.95
3. I am satisfied with the amount of job security I have.	3.27	1.15
4. I am satisfied with the respect I receive from the people I work with.	3.50	.93
5. All in all, I am satisfied with my work group.	3.86	.77

Table 2.
Participation in Decision-Making Scale Items

Item	Mean	SD
1. My supervisor encourages people to speak up when they disagree with a decision.	2.65	.95
2. My supervisor encourages subordinates to participate in important decisions.	3.11	.92
3. I have a great deal of say over what has to be done in my job.	3.48	.85
4. I often offer suggestions to my supervisor to help solve work-related problems.	3.11	1.02

Table 3.
Equity Scale Items

Item	Mean	SD
1 Considering my skills and the effort I put into my work, I am satisfied with my pay.	3.40	.87
2. Promotions or unscheduled pay increases here depend on how well a person performs his or her job.	3.19	1.09
3. My performance rating represents a fair and accurate picture of my actual performance.	2.93	1.13

RESULTS

Moderated multiple regression was used to assess the moderating effect of equity perceptions by adding the cross-product term as a separate predictor in the equation (Saunders, 1956; Zedeck, 1971). The job satisfaction scale scores were regressed on equity and participation in decision-making scale scores and their cross-product term. Hierarchical multiple regression was then used with the equity and participation in decision-making scale scores entered first and their cross-product term entered second. Following Cohen and Cohen (1975), the significance of the incremental R^2 (ΔR^2) caused by the addition of the cross-product term was assessed. The increment in R^2 accompanied by the addition of the cross-product term was significant (full model $R^2 = .34656$, $p < .01$; $\Delta R^2 = .00147$, $F = 4.84$, $p < .01$). To test the direction of the moderator effect, subjects were divided into two groups (low vs. high equity) on a median split of the equity scores (Arnold, 1982). The correlation between participation in decision-making and job satisfaction scores indicated that participation in decision-making was more strongly related to job satisfaction among subjects in the high equity group ($r = .46$, $p < .01$) than those in the low equity group ($r = .35$, $p < .01$; Fisher $Z = 2.94$, $p < .01$). Furthermore, compared to air traffic controllers in the high equity group, air traffic controllers in the low equity group were less satisfied (low: $M = 16.15$, $SD = 2.85$ vs.

high: $M = 18.76$, $SD = 2.54$, $F_{1/2176} = 509.12$, $p < .01$) and perceived less favorable PDM norms (low: $M = 11.67$, $SD = 2.64$ vs. high: $M = 12.9$, $SD = 2.54$, $F_{1/2176} = 120.8$, $p < .01$).

DISCUSSION

Several caveats should be emphasized, particularly with regard to the generalizability of the results. Data were collected from ATCSs participating in the Airway Science Curriculum Demonstration Project, and they may not be representative of all ATCSs. The respondents may have completed the questionnaires in one sitting; thus, these data may be subject to common method variance. In addition, other measures of satisfaction, participation in decision-making, and equity may have yielded different results. It should also be noted that participation in decision-making may be the moderator of the equity-job satisfaction relationship rather than the opposite, because personnel who experience certain levels of participation in decision-making and/or experience certain levels of job satisfaction may report certain levels of equity.

Despite these problems, these data suggest that participation in decision-making accounted for about 21% of the variance in job satisfaction among personnel perceiving equity, but only

about 11% among personnel perceiving less equity or inequity. While this finding is not particularly robust, it does have some practical significance. Indeed, these results have implications for the use of participation in decision-making systems -- both formal (e.g., quality circles) and informal (e.g., individual managerial style): participation in decision-making may be more likely to promote job satisfaction when the personal work situation is seen as fair. When individuals perceive their pay, promotional opportunities, and performance ratings as unfair, participation in decision-making may have very little effect on job satisfaction. However, when individuals perceive their pay, promotional opportunities, and performance ratings as fair, participation in decision-making may have some effect on job satisfaction. In other words, the success of managerial efforts to improve job satisfaction by implementing participation in decision-making efforts may be limited when subordinates perceive their personal work situation as unfair. Of course, the veridicality of perceptions may be reduced by individual disposition, as fairness is in the eye of the perceiver. Nevertheless, it is what the employee perceives that affects the employee and his/her co-workers. Therefore, perhaps managers should attend to enhancing perceptions of equity while implementing participation in decision-making efforts if job satisfaction is a desired outcome.

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PERCEIVED ENVIRONMENTAL UNCERTAINTY AND PARTICIPATION IN DECISION-MAKING IN THE PREDICTION OF PERCEPTIONS OF FAIRNESS OF PERSONNEL DECISIONS

Recent research has suggested the utility of extending equity theory (Adams, 1963) to such nonmonetary outcomes as personnel decisions (Greenberg, 1988). An emerging literature has examined the effects of performance appraisals on employee perceptions of equity. Greenberg (1986b) argued that the processes by which job information is collected and by which performance ratings are made relate to matters of equity. Evidence suggests that a performance evaluation perceived as fair is one that contains procedures and an outcome perceived as fair (Landy, Barnes, & Murphy, 1978; Landy, Barnes, Farrell, & Cleveland, 1980). The issue of perceived fairness in personnel decisions (e.g., who is recognized, promoted) is of both practical and conceptual importance, as employee attributions of fairness or unfairness will have an impact on their job attitudes and behaviors. Managers who strive to make fair or equitable personnel decisions and who face claims of unfairness typically suggest that proponents of such claims operate on insufficient information. Given the importance of perceptions of fairness of performance evaluations (cf. Greenberg, 1986a, 1986b), the identification of factors that influence perceptions of equity is needed.

PARTICIPATION IN DECISION-MAKING

The outcomes of increased participation in decision-making (PDM) have been of considerable theoretical and practical interest for several years. Argyris (1964) argued that workers will manifest responsible adult behaviors only when their managers realize that they want to be involved in making decisions. As noted by Greenberg and Folger (1983, p. 235), "psychological folklore" suggests that PDM will have positive benefits. Empirical studies have consistently shown PDM to be positively related to favorable organizational outcomes, such as job satisfaction (cf. Cotton, et al., 1988). This finding has led to the use of a variety of PDM efforts (e.g., quality circles, employee involvement programs) in many organizations.

Thibaut and Walker (1975) identified two forms of participation: (a) choice, where the participant has some control over the outcome, and (b) voice, where the participant articulates his/her interest to the decision-makers. Voice may include influence over defining the problem, gathering information bearing on the decision (personnel evaluation), and identifying alternatives, but not making the decision (Thibaut & Walker, 1975). To the extent that employees can express opinions to the employer, they have a "voice" (Cohen, 1985). Individuals typically have voice but no choice in determining their performance evaluations.

Equity theories generally suggest that the opportunity for employee input should enhance satisfaction with the procedure. Evidence suggests that participation typically leads to satisfaction and what has been described as the "fair process effect" (cf. Schweiger & Leana, 1986). The fair process effect occurs when the person is assured that his/her voice will be considered, but there is no way he/she can verify that it was (Greenberg & Folger, 1983). Leventhal (1980) and Greenberg (1986a) argued that the following principles affect perceptions of procedural justice of performance appraisals: (a) the correctability rule (procedures should increase ratee inputs into the appraisal process), (b) the accuracy rule (procedures should enhance the accuracy of information used in the appraisal process), and (c) the bias suppression rule (procedures should discourage raters' motivations to bias their evaluations). Other arguments suggest that voice procedures (i.e., procedures in which the individual can express opinions or provide information but have no decision-making power or vote) are seen as just, because: (a) of the symbolic value of opportunities for expression (Lind & Tyler, 1988), or (b) they are believed to be instrumental in securing either favorable or equitable outcomes (Brett & Goldberg, 1983).

Thus, the literature suggests that when organization members participate in decisions, they see the results of those decisions as more just. Workers who participate (or at least perceive themselves as doing so) with their managers in making decisions, in comparison to those who do not, are likely to perceive fairness in personnel decisions, because they receive and give information used in decision-making.

PERCEIVED ENVIRONMENTAL UNCERTAINTY

A lack of information about one's job or circumstances in the work situation is often referred to as perceived environmental uncertainty (PEU; Duncan, 1972; Milliken, 1987). As noted by Bourgeois (1980), PEU has been a central concept in theory and research examining the organization-environment interface (e.g., Lawrence & Lorsch, 1967; Koberg, 1987). The three most common operational definitions of PEU have been: (a) an inability to accurately anticipate the likelihood of future events (Duncan, 1972; Pennings, 1981); (b) a lack of information about cause and effect relationships (Duncan, 1972; Lawrence & Lorsch, 1967); and (c) an inability to predict accurately the outcomes of a decision (Downey & Slocum, 1975; Duncan, 1972; Schmidt & Cummings, 1976). The consequences of PEU (e.g., low productivity) have been well documented (cf. Milliken, 1987).

Workers high in PEU may perceive less equity than those experiencing less PEU, as the former group has less information about organizational events and typically experiences dissonance from having less information. In other words, individuals experiencing uncertainty may be likely to perceive less equity both in personnel decisions, because they may be likely to perceive greater uncertainty in how those decisions are made, as well as in decisions made about other aspects of the organizational context.

The present study examined employee perceptions of participation in decision-making and environmental uncertainty as predictors of perceptions of fairness in personnel decisions. We

hypothesized that both PEU and PDM would account for variance in perceptions of fairness in personnel decisions.

METHOD

FAA personnel ($N=357$) in three field facilities voluntarily participated in a one-time research study. Perceptions of fair personnel decisions (equity) were measured by 3 items tapping promotion, selection, reward, and recognition issues ($\alpha = .83$, $M = 7.62$, $SD = 7.9$). Six items assessed PDM and outcomes ($\alpha = .74$, $M = 20.12$, $SD = 4.9$), and 7 items measured PEU ($\alpha = .81$, $M = 34.06$, $SD = 6.6$). Items were presented on a 5-point Likert-type scale (1 = not at all; 5 = to a very great extent). Scales were scored high for fairness, greater PDM, and less PEU, respectively. Scale items are presented in Table 1.

RESULTS AND DISCUSSION

Both PDM scale scores ($r = .70$, $p < .01$) and PEU scale scores ($r = .53$, $p < .01$) were positively and significantly related to equity scores. Hierarchical multiple regression (Cohen & Cohen, 1975) was used to identify the utility of adding PEU to the equation predicting equity. PDM scores were entered into the equation first, followed by the PEU scores. The results indicated that the addition of the PEU scores to the equation predicting equity scores added variance over-and-above the variance contributed by PDM scores (full model $R^2 = .44973$, $p < .01$; $\Delta R^2 = .02049$, $F_{2/354} = 6.88$, $p < .01$).

Confirming our hypotheses, these data indicated that PDM and PEU contributed unique variance to the explanation of equity. As in other experimental research (cf. Bies, 1987), these data suggested that when individuals participated in decision-making, they saw the results of personnel decisions as more just. Employees who participated (or at least perceived themselves as doing so) with their managers in making decisions, in comparison to those who did not, may have perceived fairness in personnel decisions

Table 1: Scale Items

PDM Items

1. To what extent have you been able to contribute to decision-making that affects your job? ($M = 2.64, SD = 2.21$)
2. To what extent does your supervisor actively involve you in establishing goals for your work? ($M = 3.06, SD = 1.35$)
3. To what extent does your supervisor conduct "group" or staff meetings at which you or your co-workers influence the solutions and actions selected? ($M = 2.93, SD = 1.23$)
4. To what extent is authority and responsibility appropriately shared in your organization? ($M = 2.68, SD = 1.05$)
5. To what extent do you feel that employee participation groups have expressed significant and valid employee concerns to management? ($M = 3.47, SD = 1.11$)
6. To what extent do you feel that the agency has been responsive to concerns expressed by the employee participation groups? ($M = 2.44, SD = .97$)

PEU Items

1. To what extent do you get useful information about how your job fits into the total picture? ($M = 3.39, SD = 1.10$)
2. To what extent does your job description accurately reflect your job duties? ($M = 3.53, SD = 1.14$)
3. To what extent are your job duties clear to you? ($M = 3.99, SD = .98$)
4. To what extent do your performance standards accurately depict what is expected of you? ($M = 3.40, SD = 1.07$)
5. To what extent do you receive timely information from the agency concerning major decisions or organizational changes that affect your job? ($M = 2.42, SD = .98$)
6. To what extent do you receive sufficient information from the agency to understand how these changes may affect you? ($M = 2.32, SD = .91$)
7. To what extent do changes made in the agency agree with initial information you received? ($M = 2.50, SD = .82$)

Table 1 (continued)

Equity Items

1. To what extent are promotions given to those who are best qualified? ($M = 2.56$, $SD = 1.11$)
2. To what extent are rewards or recognition given for good performance? ($M = 2.54$, $SD = 1.06$)
3. To what extent is the best qualified individual selected to fill a supervisory position? ($M = 2.54$, $SD = 1.06$)

because they received and gave information used in decision-making in other areas of their work. Similarly, employees experiencing uncertainty may have perceived inequity or less equity than those experiencing less uncertainty, as the former group apparently had less information about organizational events. In other words, employees experiencing uncertainty may have perceived less equity in personnel decisions, because they perceived greater uncertainty in how decisions were made in this area and other parts of the organization.

As argued by Greenberg (1986b, p. 350), "given the highly sensitive nature of the performance evaluation process," it is likely that a major component of expressions of negative attitudes about the organization is based on perceptions of injustice. In line with Kanfer, Sawyer, Earley, and Lind's (1987) finding that individuals who were given the opportunity to provide information about their performance prior to the performance evaluation perceived more fairness in the evaluation, our data suggest that work and performance-related information may play a role in understanding and perceiving the fairness of personnel decisions. By including employees in decision-making processes and/or describing how decisions are made, managers may promote employee perceptions of justice (equity) in the organization and thus facilitate favorable organizational outcomes, such as job satisfaction. Involvement in the contribution of information to the selection decision would also likely enhance perceptions of fairness. This strategy has been employed in the FAA Supervisory Identification and Development Program in the form of soliciting input from peers on the

capabilities of the applicant for first-line supervisory positions.

We urge caution in interpreting these results, as possible confounds include common method variance and individual-level characteristics, such as level in the organization, performance ratings, and personality. Moreover, our sample was small and may not be representative. Future research should: (a) attempt to replicate these results in different settings, (b) specifically examine the extent of the impact of PDM on equity perceptions, (c) investigate the impact of other "information" variables on equity perceptions, (d) specifically examine the effects of participation in overall decisions versus participation in the assessment of one's performance, and (e) identify means to reduce method variance in situations where the type of perceptions of work-related issues discussed in the present paper are of interest. As noted by Nogradi and Koch (1981), the provision of additional opportunities for decision-making for personnel who are involved in fewer than desired decisions is extremely important from an organizational perspective. Personnel who are decisionally deprived typically have less favorable job attitudes. "Allowing such individuals to move toward a decisional equilibrium state must be a high priority for the manager" (Nogradi & Koch, 1981, p. 157). Optimally, managers should monitor the actual and preferred levels of participation to avoid conditions of decisional deprivation or saturation. Nogradi and Koch noted that the highest level of decisional saturation is at the senior administrative level and the highest level of decisional deprivation is at the supervisor level. They suggested that a relocation of decision-making from higher to lower levels may improve the job

attitudes of the personnel at the lower levels. Of course, this is not always appropriate. Moreover, increases in the number of decisions without regard for the importance of the decision could result in overloading the individual without any positive effects.

Although the importance of work-relevant information and PDM as antecedents of organizational outcomes, such as organization information-processing capabilities (Castrogiovanni & Macy, 1990), job attitudes (Argyris, 1964), employee health (Jackson, 1983), and understanding work tasks (Niehoff, Enz, & Grover, 1990), have been empirically identified, some managers avoid PDM and sharing information. Some managers may do so because they do not know how to collaborate with their workers, while others may explicitly decide to manage by mystery to keep their people unaware of goings-on, and others may simply have not thought about alternative management styles. Whatever the reason, we suggest that the growing PDM and PEU literatures provide sufficient evidence to indicate that efforts to increase PDM (as appropriate) and reduce PEU may lead to favorable outcomes.

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